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(54) BIODEGRADABLE MULTIFILAMENT AND ITS PRODUCTION

(57)Abstract:

PURPOSE: To obtain a biodegradable multifilament having high tensile strength and useful for fibers, etc., for industrial materials by melt-spinning a polymer consisting of poly(β -hydroxyalkanoate), subjecting the spun yarn to air cooling and successively drawing the yarn.

CONSTITUTION: A poly(β -hydroxyalkanoate) having about 750000 molecular weight and consisting of a copolymer of poly-3-hydroxybutyrate and poly-3-hydroxyvalerate in a molar ratio of 94/6 is blended with a nucleating aid such as boron nitride and a plasticizer such as triacetin and the blend is melt-spun from a spinneret having $0.3\text{mm} \times 36$ holes at $140\text{--}220^\circ\text{C}$. The spun yarn is cooled by air kept at about 60°C and a straight type lubricant is applied to spun yarn and then the yarn is drawn to ≥ 1.2 times at one or two stages between a roller heated to 100°C and an unheated roller to provide the objective biodegradable multifilament for fibers, etc., for industrial materials used as fishing, agricultural and civil engineering uses having $\geq 2.0\text{g/d}$ tensile strength.